The Geneva T.B. project for Bahrain very unfortunately was cancelled owing to changes of policy and financial aid in the World Health Organisation. This severely dislocated the programme to meet this problem. However, a modified scheme has been evolved making use of the ideas of Geneva and London and will be launched next year when in-patient accommodation will be considerably increased. The number of patients seen this year and treated were 275 men and 87 women. Many were foreigners and returned to their countries. Ninety were admitted and a few promising patients sent to Miraj Sanatorium. It is very satisfactory to report that those treated in Bahrain are showing greater improvement than in the past due to better drugs and surgery. A few have been in hospital for two years. 743 758

The Bahrain Medical Society had a good year of meetings and the annual Persian Gulf conference at Kuwait was well attended from Bahrain and again proved most worth while. The co-operation of doctors and hospitals up and down the Persian Gulf is a noteworthy feature not only on account of valuable mutual aid, but of interchange of knowledge on problems common to all. This also applies to medical officers of the R.A.F. and Royal Navy. 759

The hot weather was of average intensity with no heat exhaustion cases except from ships and these numbered 36 with 2 deaths. This has been causing considerable concern among all medical officers in the Gulf dealing with ships who report similarly, and as this department admits many to hospital it has now assumed some importance here. Certain shipping lines provide adequate facilities, and others do not, among which are certain British ships. The matter was taken up in a personal interview with the Chief Medical Officer, Port of London, where it was found that air conditioning might be considered but has not come into force yet. One air conditioned emergency room on each ship would greatly solve the problem and this is a matter needing prior attention. 758 743

The health of the Islands for the year was again well maintained with no epidemics or serious outbreaks of disease. 164

Miss W. E. Millson. Sister-in-Charge Nursing Home and Operating Theatre. 000

It was with great regret that we accepted the resignation of Sister Millson who left to go to New Zealand in June 1953.

She had completed six and a half years of service in three contracts and been the first British Sister for this post.

By sheer hard work and selfless service she tackled these exacting dual duties with great determination and was not daunted by insufficient staff and ever increasing work.

She made a wonderful success of it, and her work will not be forgotten.

MALE STATISTICS

1372—1953

● 164

OUTPATIENTS	*New.*	*Return.*	*Total.*
Hospital	15,182	73,991	89,173
Muharraq	12,274	16,806	29,080
Dispensaries	5,464	7,271	12,735
Schools	15,914	—	15,914
Police	1,801	3,580	5,381
	50,635	101,648	152,283

IN-PATIENTS	
Hospital	1,397
European Nursing Home	124
Isolation Block	127
T.B. Block	61
Mental Asylum	65
	1774

OPERATIONS	
Major	644
Minor (Hospital)	2,098
Minor (Dispensaries	1,003
	3,745

LABORATORY AND EX-RAY	
Laboratory Tests	9,440
X-Rays	4,497
	13,937

INJECTIONS	
Penicillin	18,481
Streptomycin	5,096
N.A.B. and Bismuth	1,275
Osteo-Calcium	3,118
Emetine	355
Quinine	318
Vaccinations	540
Miscellaneous	4,802
	33,985

PREDOMINATING MALE OUT-PATIENT DISEASE

Respiratory Disease	1,749
Opthalmia	1,465
Abscess, Boil and Ulcer	1,264
Rheumatism, Myositis, etc.	955
Fractures and Injuries	938
Abdominal Disease	654
Dermatitis	558
Malaria	538
Otitis	489
Venereal Disease	483
Worms	443
Piles and Fistula	387
Ear, Nose and Throat conditions	305
Dysentery	268
T.B. (Pulmonary)	234
Genito-urinary disease	229
Asthma	173
Cardiac Disease	53
Nephritis	44

(TOTAL SEEN : 15,182)

7

PREDOMINATING POLICE OUT-PATIENT DISEASE

Respiratory Disease	283
Opthalmia	228
Abscess, Boil and Ulcer	141
Venereal Disease	132
Injuries	115
Dysentery	102
Worms	35
Malaria	31
Pulmonary T.B.	nil

(TOTAL SEEN : 1801)

164

The results of these figures differ little from last year, except that septic complaints are doubled. Malaria is well under control, but venereal disease gives some cause for concern as this shows a high incidence compared with 46 of two years ago.

MALE IN-PATIENT :

SURGICAL :

Abscess, Boil and Ulcer	92
Acute Abdomen	24
Hernia	46
Injuries	124
Fractures	81
Piles	113
Fistula-in-Ano	28
Genito-urinary	46
E.N.T.	11
Others	105
Total	708

MEDICAL :

Abdominal	32
Asthma	19
Cardiac	28
Dysentery	36
Venereal Disease	16
Malaria	53
Pneumonia	81
Respiratory	64
Rheumatism, Myositis	27
Nephritis	7
Central Nervous System	29
Others	105
Total	497

EYES :

Cataract	22
Leucoma	13
Staphyloma	6
Trachoma	9
Conjunctivitis	8
Trichiasis	79
Keratitis	3
Iritis	9
Glaucoma	5
Panopthalmitis	6
Corneal Ulcer	21
Others	11
Total	192

RESULTS

TOTAL No. 1307

	Cured.	Improved.	Not Improved.	Died.
Surgical	657	12	16	23
Medical	362	64	30	41
Eyes	133	40	19	[illegible]

● 164

MALE ISOLATION, TUBERCULOSIS AND MENTAL BLOCKS ISOLATION

SYPHILIS

Primary	7
Secondary and Sero/Positive	13
Tertiary	6
Neurological	2
Remaining from last year	2

GONORRHOEA

Acute	10
Chronic	2
Complicated	6

MISCELLANEOUS V.D.

Bubo	8
Other venereal	4
Chancroid	1

DYSENTERY

Acute Amoebic	15
Chronic Amoebic	12
Bacillary	14
Mixed	2
Diarrhoea	2
Remaining from last year	2

MISCELLANEOUS

Hookworm	2
Other Worms	2
Dermatitis	13
Leprosy	5
Others	17
Remaining from last year	2

TUBERCULOSIS

Pulmonary	43
Others	3
Remaining from last year	15

MENTAL

New patients	45
Remaining from last year	20

TREATMENT

Penicillin	1998
N.A.B. and Bismuth	489
Emetine	106
Streptomycin (with P.A.S.)	2746
Osteo-calcium Vitamin D	1148
Others	624
Artificial Pneumo-Thorax	211
Pneumo-peritoneum	223
Phrenic Avulsion	12

164

RESULTS

	Total.	Cured.	Improved.	Arrested.	Still under Treatment.	Not Improved.	Died.
Syphilis	43	32	10	—	—	1	—
Gonorrhoea	18	17	—	—	1	—	—
Dysentery	47	44	1	—	2	—	—
Leprosy	7	—	3	—	2	2	—
Others	34	30	2	—	—	1	1
*T.B.	61	—	18	1	17	15	10
Mental	65	2	21	—	22	17	3
Totals	275	125	55	1	44	36	14

* 4 T.B. patients transferred to Miraj Sanatorium, India.

MALE EUROPEAN NURSING HOME IN-PATIENTS

Acute Appendicitis	16
Fractures and Injuries	14
Heat Exhaustion	13
Respiratory Disease	8
Abdominal Disease	8
Septic complaints	8
Peptic Ulcer	8
Genito-urinary	5
Mental states	5
Acute Abdomen	4
Dermatitis	4
Miscellaneous	28
Total	121

There were two deaths—(1) Diabetic Coma ; (2) Perforated Gastric Ulcer.

MAJOR OPERATIONS

(a) ABDOMINAL :

Appendicectomy	35
Laparotomy	10
Entero-enterostomy	5
Gastro-enterostomy and Vagotomy	1
Gun-shot wounds, intestinal repair *	1
Colostomy	1
Perforated Duodenal	1
Volbulus	1
Gall Bladder	4
Cholecysto-Jejunostomy	1
Meckyl's Diverticulum	1
Ventral Hernia	5
Strangulated Hernia	5
Inguinal Hernia	67
Amoebic Abscess Liver	1

(b) RECTO-GENITO-URINARY

Piles	106
Fistula-in-Ano	28
Hydrocoele	14
Orchidectomy	6
Suprapubic cystotomy	9
Renal stone	2
Ureteric stone	4
Bladder stone	5
Prostasectomy	6
Others	16

● 164

(c)	**BONE**	
	Excision head of Radius	2
	Excision fracture fragments	1
	Kirschner and Steinmann's pin osteosynthesis	11
	Plating	3
	Amputation	5
	Others	10
(d)	**OPHTHALMIC**	
	Cataract—intracapsular	2
	Cataract—capsulotomy	22
	Cataract—spoon delivery	1
	Needling	2
	Iridectomy	32
	Iridencleisis	4
	Dacryocystectomy	4
	Evisceration	6
	Enucleation	8
	Trichiasis—partial tarsectomy	151
	Others	2
(e)	**MISCELLANEOUS**	
	Sub maxillary stone	1
	Phrenic Avulsion	12
	Grafts	19
	T.B. Glands	2
	Suture of tendon	2
	Drainage of chest	1
	Tumours	4
	Others	2

RESULTS

Total number	644
Cured	553
Improved	54
Not Improved	23
Died	14

ANAESTHETICS

Spinal	237
Intravenous	88
Local	194
General	125

MINOR OPERATIONS

Cysts	17
Circumcision	46
Stitches	127
Abscess	214
Teeth extraction	906
Aspiration	14
Tapping	12
Plasters for fractures	60
Sounds and Bougie;	75
Retrograce Pyelogram	11
Cystoscopy	33
Artificial Pneumo-Thorax	211
Pneumo-Peritoneum	223
Sub-Conjunctival Injection	3
Pterygium	5
F.B. Eyes	27
Others	114
TOTAL	2098
Dispensaries	1003
GRAND TOTAL	3101

LABORATORY AND X-RAY DEPARTMENTS

BLOOD TESTS :	**TOTAL 5469** 164
TOTAL Kahn's	2201
Khan positive	334
TOTAL Malaria films	358
M.T. positive	40
B.T. positive	16
Haemoglobin estimations	244
Red Cell counts	64
White Cell counts	951
Differential counts	569
Haemocrits	10
Erythrocyte Sedimentation Rates	1026
Widal agglutinations	40
B. Typhi positive	21
B. Paratyphi positive	11
Rh. grouping	6
URINE TESTS :	**TOTAL 1059**
Albumin	178
R.B.Cs	116
W.B.Cs.	140
Casts	69
Sugar	189
Bile	38
Normal	549
STOOL TESTS :	**TOTAL 1464**
Entamoeba Histolytica—amoebae	36
Entamoeba Histolytica—cysts	30
Entamoeba Coli—cysts	220
Ova Ascaris	443
Ova Ancylostomata	32
Miscellaneous	551
Normal	249
SPUTUM TESTS :	**TOTAL 773**
T.B. positive	60
Bacteriological Cultures	294
B. Shiga and Flexner	6
Salmonella	2
Meningococci	7
Biochemical estimations	**TOTAL 174**
MISCELLANEOUS :	**TOTAL 205**
Urethral smears. TOTAL	58
Conjunctival smears. TOTAL	17
G.C. Positive	21
Ear clippings—Leprosy. TOTAL	38
B. Leprae Positive	5
Others	92

TOTAL EXAMINATIONS

Laboratory	9480
X-Rays	4497

BAHRAIN GOVERNMENT MALE DISPENSARIES

	Muharraq	*°E. Rafaa*	*W. Rafaa*	*Sitra*	*Karranakan*	*Aali*	*Total*
Total Patients	29080	1582	3047	3252	2339	3415	41815
New Patients	12274	670	1252	1011	1159	1372	17738
Old Patients	16806	912	1795	1341	1180	2043	24077
Schools	7599	357	—	1195	785	3148	30884
Opthalmia	1518	76	188	135	150	196	2263
Malaria	325	3	17	10	18	19	395
Venereal Disease	134	3	5	68	13	7	230
Dysentery	189	19	40	16	27	34	325
Worms	758	58	143	122	139	128	1348
T.B.	24	1	3	3	7	3	41
Minor Operations	1003	—	—	—	—	—	1003
Injections	764	21	94	478	204	104	1665
Vaccinations	54	—	140	—	115	—	309

° = *Newly opened.*

FEMALE STATISTICS

Report by Dr. I. M. A. Doeg, Lady Medical Officer.

During the year the need for increased accommodation for women patients has made itself increasingly felt. This is more particularly so in the Maternity Department where on several occasions extra beds and "shake downs" have had to be provided to accommodate the overflow of patients beyond the full capacity of the present wards. As regards private room accommodation this has for a long time been completely inadequate for our numbers. In most instances the midwifery cases are remaining in hospital only 7 or 8 days instead of 10 days as formerly—but even so the beds are always full.

During the year a third Indian Lady Doctor has come and the Nursing Staff has been increased enabling us to have two nurses on night duty.

An Ante-natal Clinic has been started on Wednesday evenings from 5—7 p.m. and from the outset has been very well attended.

The Clinics in Muharraq Dispensary have been trebled.

13

FEMALE MEDICAL STATISTICS

164

WOMEN'S HOSPITAL, MANAMA

OUT-PATIENT DEPARTMENT

1372

	Adults	Children
New cases	7,562	5,930
Return cases	14,289	10,658
	21,851	16,588

PREDOMINATING DISEASES

Diseases of Women	517	—
Pregnancy	571	—
Abortion	82	—
Disease of the Ear, Nose and Throat	409	631
Diseases of the Eye	683	579
Fractures and Dislocations	18	20
Burns	23	56
Other injuries	81	86
Haemorrhoids	27	—
General surgical conditions	32	46
Ulcers and Skin diseases	417	978
Septic conditions	150	177
Anthrax	104	80
Pneumonia	28	112
Tuberculosis (Pulmonary)	68	7
Tuberculosis (other forms)	5	15
Other diseases of the Respiratory System	403	648
Nephritis and other diseases of the urinary system	48	86
Severe Anaemia	344	44
Diseases of the Circulatory System	15	—
Diseases of the Liver	17	6
Diarrhoea	115	548
Dysentery	33	50
Intestinal Parasites	625	340
All other diseases of the Alimentary System	379	340
Malaria	180	115
Venereal Diseases	43	9
Rheumatic Conditions	1,009	28
Infectious Diseases	7	120
All other Medical Conditions	1,228	866

MINOR OPERATIONS	71
TOOTH EXTRACTIONS	697
INJECTIONS	
Penicillin	8320
Streptomycine	467
Others	4522
Vaccinations	90
POLICE CASES	21

4: Bahrain G-5 (no date) 1953 MZ2 Bahrain MZ2

WOMEN'S HOSPITAL. YEAR 1372.

LABORATORY (In-Patients and Out-Patients). PATHOLOGICAL EXAMINATIONS

Total Examinations for year		9,786
HAEMATOLOGY	HB	1,287
	RBC's	596
	WBC's	2,104
	Differentials	709
	Haematocils PCV's. MCV's	4
	ESR'S	548
	Malaria films :	368
	M.T. positive	27
	B.T. positive	12
SEROLOGY	Kahn	718
	Khan positive	97
	Widal	61
	B Thyphosus positive	11
	B Para Typhosus positive	7
	RH grouping	33
URINES	Total	1,281
	Albumen positive	377
	Sugar positive	42
	Caste present	150
	RBC'S present	73
	Pus Cells present	311
	Bile present	32
	N.A.D.	554
STOOLS	Total	815
	E. Histolytica Amoeba positive	9
	E. Histolytica Cysts positive	10
	Round worm positive	229
	Hook Worm positive	20
	EColi Cysts positive	126
	Miscellaneous ova, etc.	277
	N.A.D.	209
SPUTUMS	Total	171
	T.P. Positive	15
CERVICAL SMEARS	Total	43
	G.C. Positive	1
EYE SMEARS	Total	7
Ear Clippings for Leprosy	Total	30
Skin Scrapings for Fungus	Total	40
Bio Chemical Estimations	Total	58
Bacteriological Cultures	Total	826
	Dysentery positive	7
Miscellaneous Tests		87

(Blood Grouping, Bleeding and Clotting Times Filaria, etc.).

N.B.—T.B., G.C. and B Leprae positives given here refer only to new cases).

X-RAYS

In-Patients and Out-Patients	1,346

IN-PATIENT DEPARTMENT

Total Number of In-Patients treated 1670

PREDOMINATING DISEASES AND RESULTS OF TREATMENT :

	Adults.	Children.	Total.	Cured.	Relieved.	Discharged Otherwise.	Died.
Obstretrical	827	—	827	811	6	5	5
Gynaecological	93	—	93	72	12	7	2
Fractures, Bone Conditions, Injuries	20	16	36	23	12	1	—
Burns	3	8	11	3	4	1	3
Ulcers and Skin Diseases	4	4	8	7	1	—	—
Septic Conditions	12	10	22	12	8	2	—
Genera. Surgical Conditions	31	15	46	37	2	4	3
Diseases of the Ear, Nose and Throat	22	7	29	27	—	—	2
Diseases of the Eye	61	4	65	52	10	3	0
Anaemia and Malnutrition	19	24	43	21	12	5	5
Asthma	17	2	19	14	4	—	1
Pneumonia	12	15	27	19	1	1	6
Pulmonary Tuberculosis	11	2	13	—	7	5	1
Tuberculosis, other forms	3	13	16	1	13	2	—
All other diseases of the Respiratory System	16	16	32	26	4	—	2
Diseases of the Circulatory System	7	1	8	2	2	1	3
Nephritis and other diseases of the Urinary System	17	7	24	14	8	1	1
Diarrhoea	27	54	81	60	4	5	12
Dysentery	10	1	11	11	—	—	—
Diseases of the Liver	4	1	5	4	1	—	—
Intestinal Parasites	25	7	32	28	3	1	—
All other diseases of the Alimentary System	18	5	23	17	2	4	—
Malaria	17	10	27	26	—	—	1
Diseases of the Central Nervous System	4	1	5	1	1	2	1
Infectious Diseases	10	18	28	20	1	4	3
All other Medical Conditions	74	65	139	100	14	23	2
	1364	306	1670	1409	131	77	53

DETAILS OF OBSTETRIC CASES :

	Total.	Cured.	Relieved.	Discharged Otherwise.	Died.
Pregnancy	79	75	3	1	—
Normal Labour	530	529	—	1	—
Abnormal Labour	87	82	—	1	4
Abortions	98	96	1	1	—
Puerperium	33	29	2	1	1
Infants born alive	582				
Infants still-born	35				
Infants dying during first 10 days of life	15				

INJECTIONS :

Blood Transfusion	8
Intravenous Injections	487
Penicillin	3516
Streptomycin	1428
Other Injections	3853
Inoculations	26
Police Cases	13

OPERATIONS :

Gastrectomy	1
Gastrostomy	1
Oesophago-Cardioplasty	1
Pyloric Stenosis (Ramstedt's Op)	1
Appendicectomy	5
Ventral Hernia	2
Splenectomy	1
Transplantation of Ureters	5
Hysterectomy	5
Ovarian Cysts	4
Gilliam's Operation	5

164 **OPERATIONS**—*continued.*

Myomectomy	1
Laparotomy	3
A.P.Colporraphy	6
V.V. Fistula Vaginal Repair	2
R.V. Fistula Vaginal Repair	1
Other Gynaecological Operations	4
Excision Cancer, face	1
Excision Glands, neck	3
Skingraft	1
Haemorrhoids	8
Other general Operations	7
Cataract	2
Iridectomy	3
Enucleation Eye	2
Trichiasis	87
Other Eye Operations	4
Caesarean Section	7
Forceps Deliveries	37
Craniotomy	1
Internal Version	2
Manual Removal Placenta	3
Evacuation of Uterus	35
Other Obstetrical Operations	35
Dilatation and Curettage	29
Atresia	16
Abscesses	8
Sutures	4
Circumcision	27
Tonsilectomy	6
Hare-lip	1
Other minor Operations	4
Sigmoidoscopy	4
P.O.P.	24

WOMEN'S HOSPITAL—MUHARRAQ

OUT-PATIENT DEPARTMENT

New Cases	6,581
Return Cases	17,334
	23,915

PREDOMINATING DISEASES :

Diseases of Women	201
Pregnancy	318
Abortions	47
Outdoor Labour Cases	18
Diseases of the Eye	747
Ulcers and Skin Diseases	616
Injuries	86
Sepsis	317
Diseases of the Ear, Nose and Throat	610
Pneumonia	61
Asthma	34
Tuberculosis	12
All other diseases of the Respiratory System	468
Diarrhoea and Dysentery	576
Intestinal Parasites	411
Other diseases of the Alimentary System	458
Venereal Diseases	22
Malaria	89
Rheumatic Conditions	483
Infectious Diseases	45
Miscellaneous	982

OPERATIONS AND INJECTIONS

Minor Operations	170
Penicillin	4,376
Streptomycine	11
Other Injections	2,588
Vaccinations	6

164

MUHARRAQ IN-PATIENT DEPARTMENT

Total Number of In-Patients	315	
Normal Labour		285
Normal Labour with Atresia		8
Abnormal Labour		13
Aborations		12
Infants born alive		292
Infants still-born		16
Infants dying in first 10 days of life		7
Maternal Deaths		Nil

HIDD HOSPITAL AND DISPENSARY OUT-PATIENT DEPARTMENT

New Cases	1,996	
Return Cases	6,768	
TOTAL	8,764	

PREDOMINATING DISEASES :

Injuries	28
Ulcers, Sepsis and Skin Diseases	315
Diseases of the Eye	187
Diseases of the Ear, Nose and Throat	194
Pneumonia	25
Asthma	10
All other diseases of the Respiratory System	170
Diarrhoea and Dysentery	163
Intestinal Parasites	109
Other Diseases of the Alimentary System	95
Malaria	36
Rheumatic Conditions	11
Gynaecological Conditions	28
Pregnancy	63
Abortion	15
Outdoor Labour Cases	78
Infectious Diseases	15
Miscellaneous	289

INJECTIONS :

Penicillin	2,090
Other Injections	1,053
Vaccinations	25

IN-PATIENT DEPARTMENT

Normal Labour	78
Abnormal Labour	5
TOTAL	83
Infants born alive	77
Infants still born	6
Infants dying first 10 days of life	Nil

RAFAA DISPENSARY

d64

New Cases	2,228
Return Cases	2,486
TOTAL	4,714

PREDOMINATING DISEASES :

Injuries	12
Ulcers, Sepsis and Skin Diseases	205
Diseases of the Eye	255
Diseases of the Ear, Nose and Throat	164
Diseases of the Respiratory System	287
Diarrhoea and Dysentery	120
Intestinal Parasites	254
Diseases of the Alimentary System	164
Malaria	29
Rheumatic Conditions	179
Gynaecological Cases	44
Pregnancy	90
Abortions	6
Infectious Diseases	27
Miscellaneous	384

OPERATIONS AND INJECTIONS :

Minor Operations	2
Penicillin	889
Other Injections	396

SUQ AL KHAMIS DISPENSARY

New Cases	2,207
Return Cases	1,267
TOTAL	3,474

PREDOMINATING DISEASES :

Intestinal Parasites	367
Ulcers, Sepsis and Skin Diseases	367
Diseases of the Eye	177
Diseases of the Ear, Nose and Throat	158
Diseases of the Respiratory System	177
Diarrhoea and Dysentery	95
Other Diseases of the Alimentary System	77
Malaria	88
Rheumatism, etc.	101
Gynaecological Cases	9
Pregnancy	12
Abortions	—
Infectious Disease	7
Miscellaneous	281

INJECTIONS :

Penicillin	560
Other Injections	197
Vaccinations	13

KARZAKAN DISPENSARY

164

New Cases	1,558
Return Cases	1,722
TOTAL	3,280

PREDOMINATING DISEASES :

Intestinal Parasites	392
Diseases of the Eye	221
Diseases of the Ear, Nose and Throat	80
Ulcers, Sepsis and Skin Diseases	197
Diseases of the Respiratory System	124
Diarrhoea and Dysentery	51
Other Diseases of the Alimentary System	33
Malaria	61
Rheumatism, etc.	140
Gynaecological Cases	6
Pregnancy	7
Miscellaneous	246

INJECTIONS :

Penicillin	522
Other Injections	129

WOMEN'S ISOLATION HOSPITAL

	Total.	*Cured.*	*Relieved.*	*D.O.*	*Died.*	*Remaining in Hospital*
Pulmonary T.B.	29	1	7	12	1	8
Syphilis	4	—	3	—	—	1
Leprosy	9	—	—	—	—	9
Total	42	1	10	12	1	18

Anti-Malaria Control. Control measures were continued on the same lines as in former years linking up with the Oil Company's campaign of the East and West central areas, and in addition a system of residual spraying on a large scale was introduced and the area of activities extended to cover practically the whole of the Island. The maximum labour employed at any time consisted of 27 semi-skilled and 70 unskilled workers under two supervisors.

744
164

Malaria transmission is restricted to two periods, the first from March to June, and the second from October to January. Breeding, however, is perennial and the number of breeding places reported and treated was :—

	Anopheline.	Culex.	Anopheline and Culex.
Town Areas	188	1,340	129
Garden and Country Area ..	8.050	40,617	18.163
Total ..	8,238	41,957	18,292

Town breeding places are water storage containers, exposed sub-soil water, shallow wells, cesspools and faulty drains. The present building campaign is adding daily to the number in the form of cesspools and inadequate drainage. In the gardens and country areas, breeding occurs in badly maintained irrigation channels and drains, wells, borrow pits and stagnant pools resulting from an overflow.

Larvicidal measures consisted of oiling and suspensions to deal with water collections, weeding and canalising water channels and the use of larvivorous fish. A larvicidal oil containing Diesel 70 per cent., crude 20 per cent. and waste motor 10 per cent. with or without D.D.T. 1.5 per cent. was found to be most effective and economical. The measures employed against adult mosquitoes were fogging by Tifa machine, and residual spraying by Knapsack sprayers. Gammexane P.520 and D.D.T. were the chief insecticides used.

The incidence of malaria has been on the decline for some years past and is no longer a major problem. As the disease is not notifiable, it is not possible to define its exact proportions, but a spleen count carried out amongst 4,556 schoolboys gave a rate of enlarged spleen of 3.5 per cent. with the following figures for the most malarious areas :—

School.	Total number of Boys.	Number of enlarged spleens.	Percentage.
Sitra	120	29	24.0
Khamis	281	48	15.0
East Rafaa	140	21	15.0
Tubli	60	8	13.0
West Rafaa	63	8	12.5
Karrakan	63	6	9.5

These figures show a decided improvement on those reported in a survey carried out some years ago when the average village spleen rate was much higher. The Bahrain Petroleum Medical Department reported a rate of 3.15 per cent. of malaria cases for the year with 0.4 per cent. occurring in the first transmission period and 2.75 per cent. for the second period. These cases were diagnosed on the presence of parasites in the blood and covered a group of 7,350 local employees from all over the Island.

Both these sets of statistics will be available in the future and will give an indication of the trend of the disease.

School Medical Service (Boys). This service was inaugurated in the early part of the year. The staff consisted of a Medical Officer and an Arab nursing orderly. The scope of the service was routine medical examination of all pupils, treatment of minor illnesses with the referring of the more serious cases to hospital, education in elementary hygiene and the supervision of school sanitation.

1 744
871

1[A D. 1952-5: ... Hall 21]

744
871

There are 19 Boys' Schools on the Islands with an attendance of 4,318 pupils located as follows :—

School.		Number of Pupils.
West Primary	Manama	666
East Primary	Manama	195
East Kindergarten	Manama	453
Secondary	Manama	165
Technical	Manama	54
Old Kindergarten	Muharraq	305
New Kindergarten	Muharraq	364
Primary	Muharraq	687
Samhij		96
Hidd		340
Budaiya		167
Khamis		271
Tubli		62
Sanad		20
Aali		68
Kazakan		86
West Rafaa		64
East Rafaa		136
Sitra		119
	Total	4,318

744
871

All these pupils were examined during the year and the results noting the defects and other relevant information recorded on an individual school medical card.

●164
145

The most common defects were :—

Defect	Number cases...	Percentage Town School.	Country School.
Trachoma and Conjunctivitis	1250	20.9	52.7
Defective vision	413	7.5	15.4
Enlarged tonsils	223	5.5	3.9
Enlarged spleens	182	1.4	12.3
Skin diseases	136	0.5	10.7
Corneal opacities	88	1.6	3.2
Squint	37	1.0	0.3

The number of defects was on the whole, much higher among boys attending country schools than boys at town schools and their rate of growth was slower between the ages of 11 and 16. (Fig. 1). A lower standard of living, malnutrition and poor sanitary conditions in the villages contribute towards this discrepancy but it is hoped that the extension of anti-malarial activities, the school medical service and, if possible, the provision of a school meal, will help to remedy this state of affairs in due course.

The measurement of the weight and height of all pupils was carried out and recorded graphically on each boy's school medical card. This procedure over a number of years should be of immense value in detecting disease and assessing health, as loss of weight, failure to gain, or cessation of growth may be early indications of such various conditions as tuberculosis, sub-acute rheumatism, malnutrition, chronic disease of an essential organ, etc. While every care was taken to ensure reasonable accuracy, the anthropometric technique employed was liable to a certain measure of error as it was not possible to provide at, or carry around to each school, a beam scale weighing machine, or a proper height measuring scale. In addition, it was often difficult to estimate the correct age, as births are not registered in Bahrain, and many children especially in towns, gain admission before the school entrance age of seven years, and are shown as being of that age. As a point of interest, comparative figures in respect of weights and heights between groups of English and Bahrain schoolboys are shown (Fig. 2) from which it will be seen that at all ages, English schoolboys are heavier and taller than Bahrain schoolboys.

TRAFFIC BRANCH

(Report by Superintendent J. Hyde, Officer-in-charge of the Traffic Section)

Vehicles. During the year 1372, there was a 32.8 per cent. increase over the previous year in the registration of motor vehicles, bringing the total to 2,822, at the end of the year.

Accidents. There was an increase in road accidents. The total for the year was 142, 27.9 per cent. more than in 1371. Unfortunately, there were ten fatalities as compared with four for the previous year, the highest since 1364. The number of persons seriously injured was 29, an increase of 20.

Thirty-nine pedestrians were involved, three more than in the previous year. Of these, 12 were children of 15 years or under. There were three fatalities with children, including a girl aged 3 years. The only other female casualty was a child aged 6 years, who was injured.

One hundred and fifteen of the total accidents occurred during the day, the remainder, 27, were during the hours of darkness.

Of the fatal accidents, three occurred on the Awal Road, one at night. One near Manama Bus Station, one behind the West Primary School, Manama, one near Ahmedi's Ice Factory, Manama, one near Muharraq Petrol Station (during darkness), one inside the R.A.F. Camp and one on the Sitra Causeway.

Eight cases were taken to Court. In three cases, the drivers were found not to blame.

One cases is still pending.

Five motor-cycles, 11 pedal cycles and six donkey carts were involved in accidents during the year.

Fifty-five cases were prosecuted in the Courts as a result of accidents. In ten cases the persons were acquitted.

Traffic Offences. One hundred and twenty-eight traffic offences were taken to the Courts. The total fines amounted to Rs. 19,896/-. In four cases the offenders were sentenced to terms of imprisonment.

Thirty-two driving licences were suspended for various traffic offences.

PUBLIC SERVICE VEHICLES

Taxi Cabs and Buses. There was a considerable increase in the number of these vehicles, especially taxi cabs.

It becomes more difficult each year to provide stands for taxi cabs, and it will soon be necessary to restrict their number.

Arrangements are in hand to fit all taxi cabs with fare meters.

Driving Tests. One thousand three hundred and fifty-four driving tests were carried out during the year. Five hundred and twenty-three passed the required standard.

701 625 suit them, they spoke no Arabic, and were regarded by the people of Bahrain as expensive foreign mercenaries; they were useless at ordinary police work, and the Indian Officers and N.C.O.'s caused constant trouble by incessant quarrels and intrigues. The Indians were enlisted for four years, but before this period had expired I began to enlist a force of local men as police, a project which I always strongly advocated. It was from this time that the present force was started, but the final transition was not completed until the end of 1932.

574 362 684 **Crime and Prostitution.** The number of serious crimes which are committed every year in Bahrain is small in comparison to the population, which is thought to be about 150,000. Usually about one or two cases of murder are dealt with by the police during the year, but it is possible that occasional murders take place which are not detected, especially murders of women and newly born children. Although in recent years Bahrain has progressed in many ways, there are still a number of Arabs living in Hedd and Muharraq who consider that they are justified in murdering their female relations if the women bring shame on the family. A few of the very old-fashioned Arabs even consider that because the Government does not ignore such murders it is encouraging immorality. The Kadis, however, although ultra conservative in their outlook, disapprove of men taking the law into their own hands and murdering women who misbehave. In some Arab countries the fear of punishment by death for immorality has a very salutary effect, but Bahrain, although described as an Arab state, has very little in common with real Arab countries. The Baharna, who form about three quarters of the population, are not true Arabs, and the rest of the population includes all the nationalities who live around the Gulf. The only real Arabs in Bahrain are the Khalifah and a few families who came over with them from the mainland and a small number of members of mainland tribes who live almost entirely in Hedd, Muharraq, Budeya, and two or three small villages on the south coast.

[162] [548] [164] Immorality is undoubtedly increasing, but the increase in prostitution is not due to the Government but is a matter of supply and demand. During the last two years numbers of foreigners earning good pay have come to Bahrain, usually without their families, from Persia, Iraq, and India, and this has undoubtedly caused an increase in prostitution. Venereal disease is rampant, and the proportion of persons suffering from it, especially in ophthalmic forms, is very high. The medical supervision of prostitutes would undoubtedly result in an improvement in the public health. This suggestion was discussed and approved by the Manamah Municipal Council some years ago, but it has not yet been possible to arrange the medical organisation to cope with this matter.

674 681 Most of the criminal cases which are dealt with by the police are cases of theft, assault, and immorality. Several important gangs of thieves have been rounded up during the last ten years. Some of these gangs were well provided with arms and had regular methods of disposing of stolen property in Bahrain or on the mainland. Foreigners, especially Hassawis, form the majority of the criminals. There are a number of inveterate thieves who spend the greater part of their lives in prison. Such persons, on the mainland, would be punished by cutting off of their hands and finally by decapitation. The punishments inflicted by the Bahrain courts are whippings, fines, and imprisonment, but imprisonment to many of these people is no hardship: the work is not hard, they are given better food than they would obtain themselves, and the only real punishment is being deprived of women.

273 276 **Drugs and Liquor.** Liquor and drugs, such as opium, are forbidden in Bahrain, but in spite of the severe penalties which are enforced by the Bahrain courts against persons contravening the liquor regulations, the habit of drinking liquor and smoking opium is, in my opinion, steadily increasing. Ten years ago very few people drank liquor, and the smoking of opium was entirely confined to foreigners, Persians, Indians, and Baluchis. To-day many of the younger Arabs have acquired a liking for spirits, partly because they have had opportunities for drinking while travelling abroad, and frequent cases have occurred in which Arabs have been found to be taking opium.

276 439 Opium is smuggled into Bahrain from Persia, usually in native crafts, but sometimes hidden in merchandise on the mail steamers. It varies in quality, most frequently it is in large lumps weighing four or five pounds, but sometimes it is in paper-covered sticks sealed up in bundles. It is very

361 bazaar, a movie theatre, branches of the Eastern Bank and the Imperial Bank of Persia, a post office, a broadcasting station and a single gas station.

362 713 Little by little Manama is being modernized and the houses built by the Standard Oil Company for its American and British employees serve as models for the natives in the improvement of their own. There are three hospitals, one operated by the Bahrein Oil Company; a second, for men and women, with a British staff, by the government; and the third by the Arabia Mission of the Dutch Reformed Church in America. However, the facilities of these few establishments are quite limited and even under normal conditions 85% of the population suffers from one or more ailments.

164 548 The diseases endemic in Bahrein are malaria, the entire group of fevers, dysentery both amoebic and bacillary, bilharzia, trachoma and ankylostomiasis. At the head of the list should go the entire family of venereal diseases. Prostitution, forbidden in Saudi Arabia, has increased greatly under the complacent eyes of the authorities and Bahrein has become a kind of "pleasure island" where thousands of native and foreign employees of the oil companies from Arabia spend their 273 leaves and money buying cheap pleasure, drinking arak, a 100 proof, colorless distillation of dates, contributing to vice and the propagation of disease.

164 The island is liable to epidemics of plague and cholera. From 1905 to 1911 Bahrein was visited every second year by plague and during the epidemic of 1911, in Manama, Muharraq and adjacent villages alone, more than two thousand persons died. Since World War I international control of plague and more vigorous quarantine measures by the British administration have limited the recurrence of this disease. Since 1920 epidemics of plague have occurred only at five year intervals.

Cholera epidemics are less frequent, probably because the water supply is less open to contamination than formerly. However, last year's epidemic was as serious in Bahrein as in the other ports of the Persian Gulf.

6:Faroughy H-5 (no date)1951 MZ2 Bahrain MZ2

The diver puts his foot in a loop in his rope and goes down with the weight of the attached stone. When he has gathered as many oysters as he can, he gives a signal and the basket is pulled up. The stone follows, and last of all the diver, who by this time is not infrequently dead. 228

The average dive is about eight fathoms, and fifty seconds is the usual time under water, though it may be as long as three minutes. There are numerous accounts of much longer submersions, but it is impossible to fix the point where truth ends and romance begins in these tall tales. In any case, though the diver may come up more dead than alive, he is expected to make trips at five or six minute intervals, that is, diving fifty to sixty times in a single working day. Ten to twelve oysters is a good average for one dive.

It is little wonder that the divers are plagued by a multitude of occupational diseases. At the outset, suffocation is a constant danger. To protect their skin against rotting, the divers take the precaution of rubbing in an astringent called *Zift* (pine resin) every night before retiring. Every diver suffers from earache, and water pressure ruptures the eardrums of many of the men so that deafness is common. Water pressure also may break the blood vessels of the lungs, and the diver often comes from the water bleeding from the nose and ears. Sooner or later because of the pressure and salinity of the water many divers go blind. Bad teeth, rheumatism, and neuralgia are common, as well as the more serious acute bronchitis and heart trouble, to say nothing of the risk of being killed or maimed when attacked by dangerous fish. However, even divers who have lost an arm or a leg, or have been blinded, often continue to work. 229 164

It may not be out of place to recall here the beautiful verses of Matthew Arnold and to add "if the diver has a hut":

> *"And dear as the wet diver to the eyes*
> *Of his pale wife, who waits and weeps on shore,*
> *By sands of Bahrein, in the Persian Gulf;*
> *Plunging all day in the blue waves, at night,*
> *Having made up his tale of precious pearls,*
> *Rejoins her in their hut upon the shore."*

16: Marett D-3 (1948-1949) 1953 MJ1 Saudi Arabia MJ1 Bahrain MJ2

justifiably set at 1 year, no person was rotated until his replacement had arrived. There were many delays and these had a bad effect on morale. All in all, there was a tendency for the men to drink more than ordinarily, although we did not have too much trouble with alcoholism per se. We had our share of functional complaints and a few frank psychoses. Our next echelon of medical evacuation was a general hospital in Germany. This gave rise to the problem of those men who wanted to go to Germany to be hospitalized for one condition or another. It can well be imagined that a nice stay in a general hospital in Germany was a desirable change from the conditions in Arabia. Every effort was made to improve the recreational facilities and close co-operation was required of the medical personnel, chaplains, and command personnel. Among other things, a deep-sea fishing boat, which also doubled as a crash boat, was outfitted. This helped appreciably. We had a swimming pool of sorts which kept filling with sand. This was ultimately renovated and made more serviceable. Most of the recreational facilities of Aramco were open to us but there was the problem of transportation. We also had an open air movie theater that operated several nights a week. This was used to the maximum—almost everyone saw all the films. More recently the recreational facilities have been improved many fold.

Venereal disease in Saudi Arabia proper was no problem because prostitution does not exist. Our men had no contact with the local women. The native women are kept in seclusion for the most part, and when seen are shrouded in long, black dresses and heavily veiled, the entire face being covered with sort of leatherlike masks. Some cases in our men were, however, contracted from Indian prostitutes on Bahrein Island, which is located about 25 miles out in the Persian Gulf. We had planes going there almost every day and men were allowed to visit on pass. Bahrein Island is an independent sheikdom under a sort of British mandate and is the site of Bapco (British Arabian Petroleum Company). The city of Manama on Bahrein Island is quite large and served as a local shopping place for American personnel. The prostitutes there were almost 100 percent infected with one or more venereal diseases. Our incidence of infection from this source would probably have been much higher had the town been more readily accessible.

During the few cooler winter weeks our incidence of upper respiratory diseases was increased. This was especially true during the times of transition, such as early winter and early spring when the days were hot and the nights cool. After suffering with the heat for so long, there is a tendency for Americans not to clothe themselves properly when cooler weather arrives. During most of the time, short-sleeved shirts and shorts were worn. Open-

30: Gt. Britain G-5 (ca. 1918) 1920 MJ1 Saudi Arabia
BAHRAIN MZ2

133 el-Kabb, runs into the island from the E. coast, penetrating nearly to the centre. The rocks of Bahrein, except those of Jebel ed-Dukhân, which are dark, are pale-coloured limestone of the Eocene Age, cometimes sandy or argillaceous, and containing much flint or other siliceous material, with both gypsum and salt. The interior depression, like the flat shores of the island, has emerged from the sea in more recent times; the latter consists of coral rocks or shelly concrete. There is a small deposit of asphalt 3 miles SSE. of Jebel 312 ed-Dukhân. The Bahrein islands are famous, like the oases of Hasa and Qatîf, for a number of springs, clear but slightly brackish, which are fed by the drainage from Nejd travelling down to the coast under the Dahanah desert. Some of the springs are submarine (*kuwâsh*); the best known of these are that called *Abu Mâkur*, close to Muharraq Island, and that near the E. extremity of *Khôr Fasht*, a large coral reef about 7 miles NW. of Bahrein Island. The best water of the archipelago comes from the *Hancini* wells N. of the central depression on Bahrein, and the *Khâlid* and *Umm Ghuweifah* wells on the adjoining plateau. The springs N. of the Khôr el-Kabb are generally almost pure, but warm, as in Hasa: the best known are called *'Adâri*, *Qassâri*, and *Abu Zeidân*.

Climate

132 Through the nearness of the sea on all sides, and abundant irrigation, the atmosphere of Bahrein is damp and heavy, with a mean humidity ranging from 79–80 per cent. of saturation. Though [164] there is much malaria and rheumatic disease, the climate is not the most unhealthy in the Gulf. The maximum temperature, usually attained in August, is about 104° F.; the minimum, reached in December or January, about 48°. The average rainfall for the years 1910–13 was 4·55 in. The weather from October to April inclusive is not unpleasant, indoor temperature ranging between 60° and 85°. In January and February N. winds blow, and it is cold enough for fires to be acceptable. Though the weather is hot from the beginning of May to the middle of June, the heat is still tempered by the sea-breeze, and nights are fairly cool. The oppressively hot weather lasts from the middle of June to the end of September; in this period, though there may be irregular land-breezes, the thermometer remains persistently above 100° F. All rains fall between the middle of October and the middle of May, but actual wet days are few. The prevailing wind is the *Shamâl* or north-wester, which blows for forty days from the second week in June and is very violent in winter; next to this in frequency

63 Simmons et al G-5 (1941-1951) 1954
M1 Middle East
BAHRAIN M2 2

Island, but fresh-water springs, said to originate in the mountains of Arabia, are found in the shallow waters about a mile from the shore. Up to around 25 years ago, most of the water used in the towns was brought by donkey carts from wells or springs in the oases; sometimes by boats from the offshore springs. Water for domestic and irrigation purposes is now obtained from springs and shallow wells, and to an increasing extent from deep wells: several hundred artesian wells have been sunk within recent years on Bahrain, Muharraq, Sitra and other islands. In 1948, a special Agriculture and Water Committee was created in the government to control the water supply and prevent unnecessary wastage.

Manama has a municipal water supply, the initial stages of which were completed in 1948. Water, derived from artesian wells, is piped to about 70 per cent of the houses and to community fountains in the older, congested districts and *barasti* settlements. In other towns, water from private wells is used, or day-by-day supplies are purchased in 5-gallon cans from commercial peddlers.

Most shallow wells and spring supplies are unprotected and seriously polluted. Since the installation of a piped water system in Manama, many of the shallow wells have been closed, with a resultant decrease in anopheline breeding and in prevalence of intestinal infections. However, numerous opportunities for contamination still occur in the distribution of water from community sources. Distilled sea water is produced by a plant at Manama, but its sale for household purposes has been restricted since the town supply became available.

Waste Disposal

The methods of sewage disposal are generally primitive. Septic tanks are employed in connection with many of the newer houses, and in the oil company installations. Cesspits or simple privies are in use in the bazaar districts and the *barasti* quarters, as well as in the smaller towns and villages.

p. 259(A)

Pollution of the soil is common, although the practice is discouraged in the towns.

Fauna and Flora

Except for investigations relating to the anopheline vectors of malaria, few entomologic studies have been undertaken in Bahrain. Five species of anopheline mosquitoes have been identified—*Anopheles stephensi*, *A. culicifacies*, *A. sergenti*, *A. fluviatilis* and *A. pulcherrimus*. *A. stephensi* breeds in shallow wells, seepage pools, water storage tanks and irrigation ditches, and is responsible for a large part of the malaria transmission on the islands. While *A. culicifacies* is probably a vector in some localities, it is generally regarded as of minor importance. *A. gambiae* is not indigenous, but it is sometimes found on board dhows upon arrival in port. Species of *Culex* are widespread. However, no vectors of filariasis have been recorded locally. Species of *Aedes* are known to be present.

A campaign for the control of malarial mosquitoes has been carried on by the government since 1939. Supplementary programs are conducted by the Bahrain Petroleum Company in the vicinity of its installations and throughout the southern half of Bahrain Island. The antilarval measures include the treatment of breeding places with oil or DDT preparations and the stocking of wells and drainage ditches with the larvivorous fish, *Gambusia*. The prevalence of anopheline mosquitoes reached minimal proportions in Manama by 1948, but was still extensive in the surrounding suburbs and date garden areas. The following year, the spraying of the marshes, rubbish dumps and gardens around the main towns and the residual spraying of the houses and the bazaars with DDT and Gammexane preparations were introduced for the suppression of both flies and mosquitoes.

Flies are abundant, although their numbers have been markedly reduced in the towns since the inauguration of the residual

BAHRAIN MZ 2

Bahrain Petroleum Company. Two or three Indian dentists are reported to be practicing in Manama. 759

Nurses. In 1951, there were 24 trained nurses on the staffs of the different hospitals—10 in the government hospitals, 12 in the oil industry hospital and 2 in the mission hospital. In addition, 2 male nurses were working in the government institutions and 5 in the industrial. Ten nurse-midwives were connected with the government maternity hospitals and clinic.

Others. Bahraini and Indian medical assistants in various categories were employed in the hospitals and dispensaries.

DISEASES

In the absence of adequate reporting of morbidity and mortality on the islands, the information available regarding the prevalence of specific diseases is necessarily incomplete. Few scientific medical investigations have been undertaken in this area. The records of cases treated in the hospitals and the dispensaries provide data of general value in assessing the health status of the people, but they are limited in scope and applicable as a rule to a small percentage of the inhabitants. Moreover, the population is continually fluctuating, and many cases of illness treated in the local hospitals originated outside Bahrain. 164

Diseases Spread or Contracted Chiefly Through Intestinal or Urinary Tract

Typhoid and Paratyphoid Fevers. Typhoid fever is endemic, but apparently it is not as prevalent as the insanitary conditions regarding food and water supplies would seem to warrant. Cases tend to be sporadic, although water-borne outbreaks attributed to contaminated well supplies sometimes occur. From 48 to 60 cases were reported annually in the 4 years 1948-51—probably a small part of the numbers actually present. Paratyphoid fevers are common. According to local medical authorities, most of the cases seen in the hospitals are para- 164 364 164

p. 241(B)

164 typhoid A infections, a large proportion of which occur among nonresidents.

Dysenteries. Both amebic and bacillary dysentery are widespread. The percentage [134] of carriers of *Endamoeba histolytica* is believed to be high, but the relative infection rates in the general population are uncertain. Over 1,000 cases of "dysentery" were treated in government institutions in 1950. The cases among men patients registered in the government isolation hospital in the two years from November, 1948, through October, 1950, totaled 120 for the first year and 176 for the second. Amebiasis was diagnosed in 59 to 71 cases and bacillary dysentery in 56 to 67. Mixed infections were recorded in a few cases, while in the second year, 30 cases were classified as diarrhea. Laboratory confirmation is not attempted, except in hospital cases, and the results of bacteriologic examinations are incomplete [136] in many instances. *Shigella paradysenteriae* (Flexner) predominates among the recognized infections, but Shiga, Schmitz, Sonne and Newcastle strains are encountered with 164 considerable frequency. The health authori- 744 ties anticipate a diminution in the prevalence of dysentery in Manama and Muharraq as a result of the fly control campaigns initiated in 1950.

Cholera. Cholera was formerly recurrent in the Persian Gulf ports, all of which are exposed to spread of the infection by coastwise traffic. Within recent years the rigorous application of quarantine measures has curtailed the number of outbreaks. Cholera has not appeared in Bahrain since the middle 1930s, when it was traced to the crew of a dhow visiting the port of Manama.

164 **Helminthiases.** Infection with intestinal 136 worms is almost universal. The rate of infection with *Ascaris lumbricoides* is estimated at 95 to 100 per cent. Heavy infections are encountered frequently, especially in children. Enterobiasis and trichuriasis are common. Taeniasis, caused by the beef tapeworm, *Taenia saginata*, is sometimes seen. A few cases of echinococcosis are treated in the local hospitals each year; the

136 164 majority are believed to have been acquired elsewhere. Cases of ancylostomiasis and schistosomiasis are occasionally observed, primarily among non-Bahrainis, yet no indigenous foci of infection are known to exist.

Diseases Spread Chiefly Through the Respiratory Tract

164 **Tuberculosis.** Tuberculosis is widespread, but little precise information is available regarding its prevalence in the local population. The disease is believed to be extensive in Arabia, particularly among 164 the Bedouin. In Bahrain, the migration of 464 workers to and from the mainland, over- 513 crowding and the generally low standards 758 of personal hygiene are regarded as factors influencing the spread of the infection. The facilities for diagnosis and treatment are 754 inadequate. The government operates a 15- 758 bed tuberculosis sanatorium and provides treatment for tuberculous cases in its regular hospitals and dispensaries. It also subsidizes the transportation of certain cases to India for treatment, since many individuals do not respond favorably under the climatic conditions prevailing in Bahrain. About 220 to 350 cases were under observation in government institutions annually from November, 1948, to November, 1950. 164 Pulmonary tuberculosis predominates, but a high rate of nonpulmonary infections also is encountered.

Smallpox. Bahrain is especially vulnerable to the introduction of smallpox from the neighboring Persian Gulf territories, Pakistan and India, and outbreaks are recorded at frequent intervals. Large-scale epidemics were reported in 1941-42 and in 1948-50, with sporadic cases in the intervening years. The most recent epidemic started in December, 1948, in the Hora section of Manama, and spread in a series of localized outbreaks, persisting into 1950. Eighty-six cases were transferred to the quarantine hospital in 1949, and about one third of that number the following year. The percentage of unrecognized infections

was also believed to be high in many districts. The fatality rates among the hospitalized cases averaged 6 to 22 per cent. The disease subsided in the summer of 1950, and no cases were observed in 1951.

Vaccination against smallpox is not compulsory, but the health authorities endeavor to promote it in the school population. In 1948-49, a house-to-house campaign was carried on in the infected sections of Manama, and vaccination centers were established in the outlying districts. Vaccination is required of travelers to Bahrain, and persons who arrive without valid certificates of immunization are vaccinated by the medical officers upon landing.

Other Infections. Pneumonia is prevalent: a large proportion of the cases are probably bronchopneumonias. Measles, mumps and whooping cough are endemic, and often epidemic. Chickenpox and poliomyelitis are also endemic, but the reported cases are usually few in number. Meningococcus meningitis is sporadic, and occasional small outbreaks are recorded.

Diseases Spread or Contracted Chiefly Through Contact

Venereal Diseases. Venereal diseases constitute a major problem, due to the transitory nature of a large section of the population. Local medical authorities believe that the syphilitic infection rate approximates 60 to 70 per cent. Numerous mild nonvenereal infections are observed among children, although the familiar manifestations of congenital syphilis are relatively rare. Gonorrhea is widespread, but chancroid and lymphogranuloma venereum are of minor significance. Cases of venereal disease are treated at the isolation hospital and the various dispensaries.

Diseases of the Eyes. Eye infections are prominent throughout this region. Ignorance of the basic principles of hygiene and the prevalence of flies, as well as the irritating effects of sand and wind during the *shamal* seasons, are underlying factors in the spread of trachoma, conjunctivitis and

p. 263(A)

63 Simmons et al G-5 (1941-1951) 1954
MI Middle East
BAHRAIN MZ 2

other eye diseases. Trachoma is widely distributed, and estimates of prevalence range from 35 to 90 per cent, depending upon the locality. Trichiasis is frequent. The most serious effects are often observed among immigrants from Saudi Arabia, the Trucial Coast and Iran. In an average of over 1,200 men patients receiving medical or surgical ophthalmic treatment in the government hospital in each of the two years 1949-50, about 30 per cent were suffering from trichiasis. Special attention is given to the treatment of eye diseases in all the hospitals and dispensaries, and clinics are conducted in some of the boys' schools.

Diseases of the Skin. Mycotic infections of the skin are common, but the children appear to be relatively free from favus. In spite of the low standards of hygiene among the poorer inhabitants, rabies is seldom seen.

Leprosy. Although leprosy is present among the Baharna, it is rare in the Arab community. Cases are found on all the islands, probably with greatest frequency on Sitra. The severity of the infection seems to be decreasing, and the percentage of childhood cases in recent years has been low. The actual number of lepers in the indigenous population is uncertain: it was believed to be about 100 in 1951. No segregation is practiced, but lepers are forbidden to congregate and beg in the towns.

Other Infections. Sporadic cases of tetanus and of tetanus neonatorum occur occasionally. Rabies is not recorded at present.

Diseases Spread by Arthropods

Malaria. Malaria was formerly one of the foremost disease hazards in Bahrain, but in recent years its importance has declined progressively with the expansion of the anopheline control program. The present morbidity is believed to be insignificant in comparison with that encountered before the inauguration of the government's anti-malaria campaign in 1939. Treatment statistics are of doubtful value, yet they are

P. 263(B)

164 useful in portraying the persistence of the
758 disease. Records for 1949-50 indicate that between 1,700 and 2,000 persons were treated annually for malaria in the government hospitals and dispensaries alone.
164 There are normally two seasons of transmission—from the middle of March through June, with a peak early in June, and from the middle of September to the middle of January, with a peak in November. When climatic conditions are exceptionally favorable for anopheline breeding, however, transmission may take place throughout the year, with a minimum of activity in the winter months.

Because of its location on the edge of the date garden belt, Manama has always been highly malarious. As the result of control operations, the degree of infection has lately been reduced to a low level in the town, but up to 1950 it was still extensive on the outskirts. In limited malaria surveys made in January and again in May and June, which were reported in 1938,[1] the spleen rate among 234 boys of 4 to 14 years of age examined in Manama averaged about 39 per cent, while the corresponding rate among 137 boys in Muharraq was 13 per cent. The parasite indices in January were calculated at about 22 per cent in Manama and 6 per cent in Muharraq.

136 In general, *Plasmodium vivax* infections
164 predominate in June and *P. falciparum* in
[167] November. In the opinion of some local medical authorities, the prevalence of *P. falciparum* was enhanced by the mobility of military and civilian personnel in this region during the war years 1939-45, but it is now diminishing. In 249 blood films prepared in January in connection with the above investigation, malaria parasites were detected in 34: *P. falciparum*, in 10; *P. vivax*, in 13; and *P. malariae*, in 10; while one showed both *P. falciparum* and *P. malariae*. *Anopheles stephensi* is considered to be the principal vector, but *A. culicifacies* is probably implicated to some extent in certain localities.

164 **Plague.** Severe outbreaks of plague have

p. 264(A)

63:Simmons et al G-5 (1941-1961) 1964
MI Middle East
BAHRAIN MZ 2

164 occurred intermittently in the past, chiefly in Manama and Muharraq. The islands are [744] exposed to the introduction of the disease from neighboring territories, but the enforcement of quarantine regulations has prevented its establishment for several decades.

Other Infections. Although a mild degree of louse infestation occurs among the inhabitants in some congested areas, louse-borne typhus is rarely, if ever, reported. Imported cases of cutaneous leishmaniasis, or Oriental sore, and filariasis are occasionally treated in the local medical institutions, but the insect vectors are not known to be present, and indigenous infections have not been recorded. Guinea worm infection is sometimes seen among persons from Iran, but it is not found in the resident population.

Nutritional Diseases

146 361 511 The standards of nutrition have improved materially in the last few years. Undernutrition is common, but serious defects are seen primarily among the inhabitants of outlying villages and the families of workers from the mainland. Poverty, traditional dietary customs and intestinal parasitism are contributory factors. Subclinical deficiencies in vitamin C are widespread, and scurvy is observed from time to time. Rickets is frequent among the children in the towns. Anemia is prevalent, and hemoglobin levels of 25 to 30 per cent are not unusual among the women.

SUMMARY

619 131 282 315 Bahrain is an independent sheikhdom which consists of an archipelago of 5 main islands situated in the Persian Gulf near the coast of Arabia. It has long been famous as a pearl fishing center, and, since 1932, has enjoyed prosperity as an oil-producing area.

161 162 795 144 It has a heterogeneous population which numbered 109,650 in 1950, including 18,471 foreigners. The people are predominantly of mixed Arab and Persian origin, and about 96 per cent are Moslems.

p. 264(B)

64: Shwadran S-4 (no date) 1955 MI Middle East
Bahrein M22

one went to the Sheikh for the maintenance of his household and family; one was for current Government expenses and development projects; and one for investments abroad as a reserve for future contingencies. With the increase in income—directly from oil revenue and indirectly from customs duties—as a result of the Company's activities, Government services increased and a number of development projects were undertaken. By 1951 there were three hospitals on the islands—the American Mission Hospital and the Company hospital mentioned above, a Government hospital for men and women operated by a British staff, including a section for the mentally ill—as well as a number of municipal clinics. General health conditions were not good: malaria and other fevers and dysentery were prevalent; bilharzia, trachoma and hookworm took a heavy toll; and above all, a large proportion of the population was infected with venereal diseases. Medical services were supplied to every Bahreini free of charge.

Though there had been some educational facilities before the development of the oil industry,[22] it was not until 1934 that the Government engaged a number of Iraqi teachers and enlarged the facilities. By 1951 there were nine elementary schools, one secondary school, founded in 1940, and one school for girls opened in 1939, all tuition-free. The schools were staffed with 258 teachers, who instructed some 6,000 boys and girls. The Government, in conjunction with the Company, also provided scholarships to graduates of the secondary schools for study abroad.

The Government built roads, bridges, harbors and a large airport; water was supplied from artesian wells instead of being brought in by boat; and efforts were made to improve housing conditions. Though without a single newspaper in 1951, Bahrein had a broadcasting station, built in 1940 for Allied war purposes, a dial telephone system, forty miles of roads and 2,000 automobiles. Most of the streets of the main towns were electrically lighted, and a sewerage system had been installed. The net result was a higher standard of living for the Bahreinis, not only in comparison with their own pre-oil standard, but also with the people of the neighboring states.[23]

[22] In 1926 there was one school for boys only, and it was poorly attended. James Bell, "He Said Forward! to the Backward," *Life*, Nov. 17, 1952.

[23] U.N., *Summary 1952-53*, 58-59; Sanger, *The Arabian Peninsula*, 148-149;